

**ENGINEERING STATEMENT**  
**OF**  
**BENJAMIN L. PIDEK, P.E.**  
**IN SUPPORT OF**  
**APPLICATION FOR CONSTRUCTION PERMIT**  
**POST-INCENTIVE AUCTION ASSIGNMENT FACILITY**  
**WQTO**  
**DISTRIBUTED TRANSMISSION SYSTEM**  
**PONCE, PR**

**Background**

Sistema Universitario Ana G. Mendez, Inc. (Mendez) is the licensee of WQTO which has been authorized to operate a two-site Distributed Transmission System (DTS) on Ch. 25 on the island of Puerto Rico:

**Pre-Incentive Auction Facilities (Ch. 25)**

<b>Sites</b>	<b>Site 1</b>	<b>Site 2</b>
<b>ERP (kW):</b>	800 (DA)	15 (DA)
<b>RCAMSL (m):</b>	681.1	388
<b>Coordinates: (NAD27)</b>	18° 04' 48" N 66° 44' 56" W	18° 19' 06" N 67° 10' 49" W
<b>ASRN:</b>	1231838	NA – tower less than 200' AGL

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WQTO has been assigned Ch. 19 for its post-incentive auction DTS facilities with the following parameters:

Post-Incentive Auction Facility (Ch. 19)

Sites	Site 1	Site 2
<b>ERP (kW):</b>	696 (DA)	13.1 (DA)
<b>RCMSL (m):</b>	681.1	388
<b>Coordinates: (NAD27)</b>	18° 04' 48" N 66° 44' 56" W	18° 19' 06" N 67° 10' 49" W

**Antenna Systems and Towers**

The existing Site 1 and Site 2 both have side-mounted directional antennas and both are coaxial slot antennas that are channel specific and not usable on Ch. 19 (Dielectric TFU-22DSC P230 DC and Dielectric TFU-16DSB/VP-R P270 SO respectively). Mendez intends to replace the existing antennas with a new directional coaxial slot antennas for Ch. 19 at each site:

Site 1 - TFU-22DSC-R P230

Site 2 - TFU-16DSB/VP-R P270 (SP)

The azimuth and elevation patterns and dBk table for each proposed antenna have been attached to the application.

The new Ch. 19 antennas at each site will have the same center of radiation as those of the current antennas (which match the assigned antenna radiation center heights of each facility): Site 1 - 681.1m AMSL and Site 2 - 388m AMSL.

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The antenna manufacturer was able to match the assigned repack antenna azimuth patterns for both new antennas; thus, there will be no change from the assigned post-repack facility parameters.

The antenna for WQTO Site 1 will be mounted on a registered tower (ASR#1231838) while the antenna for Site 1 will be mounted on a tower less than 200 ft tall above ground level. The replacement of both side-mounted antennas will result in no change to the overall height of either structure; therefore, neither notification to the FAA nor modification to the ASR (for Site 1) are necessary.

### **Coverage and Request for Waiver**

The entire principal community of Ponce, PR is well within the predicted F(50,90) 48 dBu contour of the proposed Site 1 DTS facility.

Figure 1, attached hereto, shows the predicted noise-limited service contours of the proposed DTS facilities (Site 1 contour in green and Site 2 contour in red). The union of these contours represents the “DTS coverage area” as defined by the Commission’s Rules. The black circle contour on the map defines the 103 km maximum service area for a DTS authorization found in the “Table of Distances” in Section 73.626(c) of the Commission’s Rules for a UHF DTS located in Zone 2.

The coverage area of the DTS Site 1 will not exceed the authorized service area. As can be seen in Figure 1, the coverage area of Site 2 will exceed the maximum DTS service area as specified in the Table of Distances (represented by the black circle contour); however, all of the area where the Site 2 contour will exceed the authorized maximum DTS service area is over entirely over water and will not result in any actual increase in population or land area served.

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WQTO was previously granted the request for waiver of the requirement to not exceed the maximum DTS service area (103 km) for the Ch. 25 facility. To the extent necessary, Mendez requests a waiver carry over to the new Ch. 19 facility.

### **FCC Monitoring Station**

The signal of the WQTO authorized facility (Site 1) presently exceeds the 10 mV/m threshold specified in Section 73.1030(c)(1) at the Santa Isabel FCC monitoring station. As part of the repack process, the WQTO channel change (from Ch. 25 to Ch. 19) will result in a reduction in ERP from the WQTO Site 1 facility (from 800 kW to 696 kW); therefore, the signal from the WQTO Site 1 facility will actually be reduced from its current level at the monitoring station location.

Site 2 of the DTS is not predicted to impact the monitoring station as it will be located 57 miles from the Santa Isabel monitoring station which is farther than the suggested distance (10 miles) for advance coordination for the proposed power level for Site 2 (13.1 kW).

### **Radio Astronomy**

Since the proposed WQTO facility is located on the island of Puerto Rico, the Interference Office located at the Arecibo Observatory will be notified of this plan to change facility parameters by forwarding a copy of this DTS application.

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## **Interference**

Mendez is not seeking to expand the noise-limited service contours of either WQTO DTS facilities beyond the noise-limited contours of its assigned post-incentive auction facilities in any direction; therefore, no interference analysis is required to be submitted with this application.

## **Environmental/RFR Statement**

This report addresses only the conditions specified in 47CFR1.1307 that deal with Radio Frequency Radiation. Any other non-RFR conditions that might require the preparation of an EA are beyond the scope of this report; since the structure is existing and registered, such conditions should not be an issue requiring further consideration.

The location of the proposed Site 1 facility is assumed that the site is currently “in compliance” with FCC guidelines for human exposure to RFR (as defined in OET-65). The worst case ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.056771 mW/cm<sup>2</sup>, which is only 16.9% of the MPE limit for public exposure (0.335333 mW/cm<sup>2</sup>) at Ch. 19 (500-506 MHz). Since this is not a multi-user site, there are no other significant contributors of RFR and, therefore, the site will remain “in compliance” with FCC guidelines.

The location of the proposed Site 2 post-incentive auction facility is a multi-user site and it is assumed that the site is currently “in compliance” with FCC guidelines for human exposure to RFR (as defined in OET-65). The worst case ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.013508 mW/cm<sup>2</sup>, which is less than 5% of the MPE for public exposure (0.33533 mW/cm<sup>2</sup>) at Ch. 19 (500-506 MHz). The contribution to the overall RFR from the proposed facility is negligible and, therefore, the Site 2 will remain “in compliance” with FCC guidelines.

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Mendez agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers will be trained on RFR issues and encouraged to wear personal RFR monitors when on the structure. The tower bases are enclosed by locked security fences and appropriate signage warning of potential RFR hazards is posted.

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### **Certification**

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.

A handwritten signature in black ink, appearing to read "B. L. Pidek", written over a horizontal line.

Benjamin L. Pidek, P.E.  
July 6, 2017

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## Mid-State Consultants

## Service Area of Proposed WQTO DTS (Union of Site 1 and Site 2 Coverage Contours)

### WQTO-Site1

DTVBL2175

Latitude: 18-04-48.14 N

Longitude: 066-44-55.37 W

ERP: 696.00 kW

Channel: 19

Frequency: 503.0 MHz

AMSL Height: 681.1 m

### WQTO-Site 2

DTVBL2175

Latitude: 18-19-05.98 N

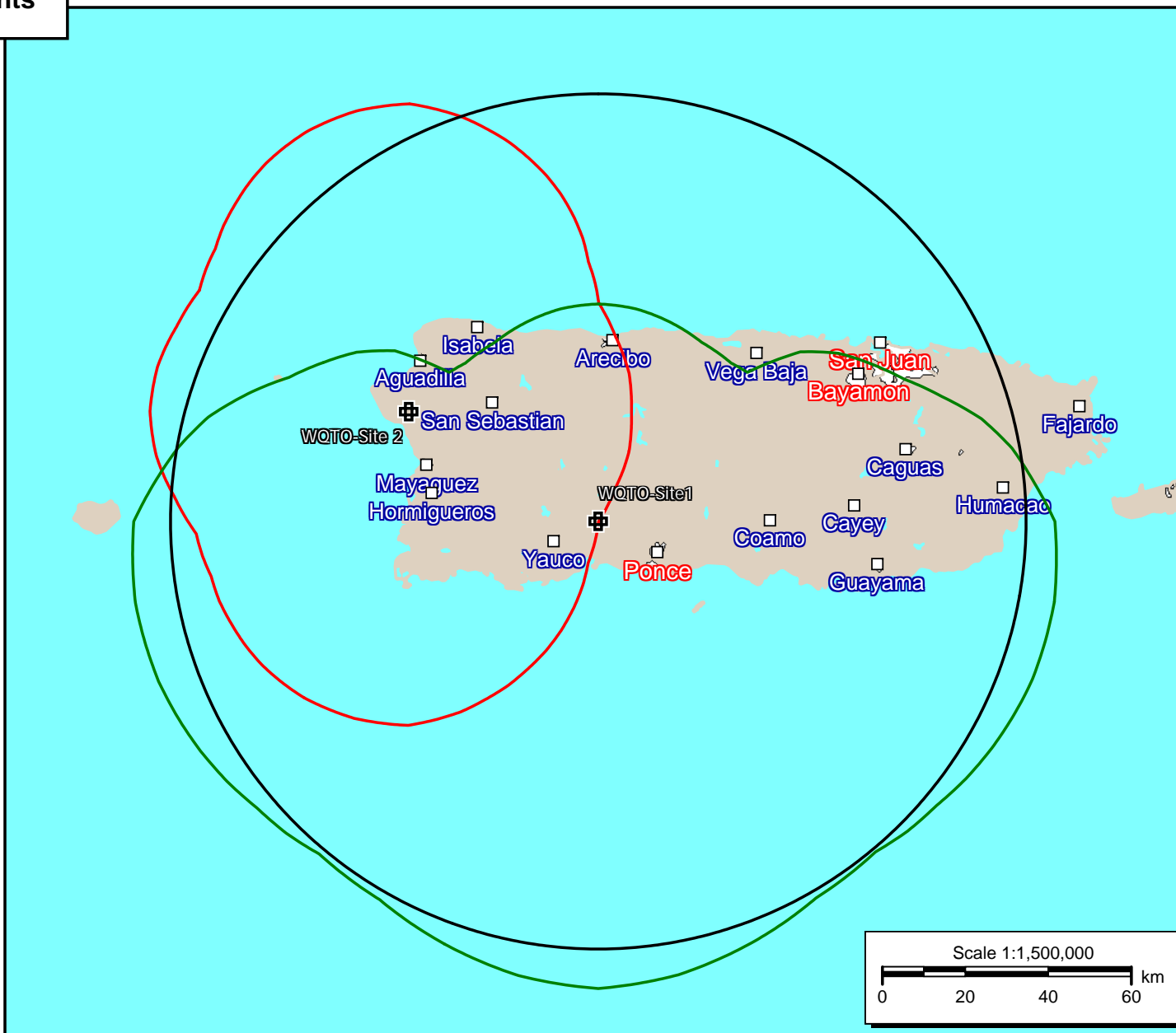
Longitude: 067-10-48.95 W

ERP: 13.10 kW

Channel: 19

Frequency: 503.0 MHz

AMSL Height: 388.0 m



Green - Predicted Noise Limited Contour of WQTO DTS Site 1

Red - Predicted Noise Limited Contour of WQTO DTS Site 2

Black - 103 km Maximum DTS Service Area for UHF DTS in Zone 2

Figure 1  
7-6-17